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Improvement of fire-fighting and evacuation provisions in existing lifts – Code of practice

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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 October 2016. It was prepared by Technical Committee MHE/4, *Lifts, hoists and escalators*. A list of organizations represented on this committee can be obtained on request to its secretary.

Information about this document

For more than 75 years, lifts have been used by fire and rescue personnel in fighting fires and evacuation of persons from buildings, but each lift product offered different solutions as to their usability for this purpose. As long ago as 1986, BS 5588-5 gave recommendations for the design of fire-fighting lifts and suitable building design requirements. In more recent years, BS EN 81-72 has been developed to give definitive guidance on the design of new lifts for this purpose, with BS 9999 giving recommendations on suitable building design.

This has led to the potential obsolescence of lifts designed and installed prior to application of BS 5588-5 or BS EN 81-72, and it can be challenging for fire and rescue services and others to ascertain exactly which provisions are available on any given lift installation and whether the provisions can be used in practice.

BS 8899 has been developed to assist in improving fire-fighting and evacuation provision in lifts installed before the publication of BS EN 81-72:2015.

Use of this document

As a code of practice, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

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Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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Introduction

In drawing up this British Standard, the following assumptions have been made:

a) the lift is a conventional passenger lift with electric traction or hydraulic drive system as described in BS 2655-1, BS 5655-1, BS 5655-2, BS EN 81-1, BS EN 81-2 or BS EN 81-20;

b) the lift is permanently installed into a building where each lift landing door is or can be accessed via a suitable fire and smoke protected area, such as described by BS 5588, BS 9991 or BS 9999. Typically, these protected areas would be:

   1) in buildings for commercial use – a protected lobby, fire-fighting lobby, or possibly protected stair enclosure;

   2) in buildings for residential use – a protected corridor, protected lobby, or possibly protected stair enclosure;

   3) alternative protected areas justified by building specific fire strategy and/or fire risk assessment;

c) a lift for fire service use serves all floors of the building deemed necessary to fight fires in agreement with the local fire and rescue authorities;

d) an evacuation lift serves all floors of the building deemed necessary to facilitate the evacuation of disabled people or those with limited mobility;

e) lifts for fire service use are not part of escape routes, although they may be used for the evacuation of disabled people prior to use by fire-fighters as part of a fire strategy supported by a suitable fire risk assessment;

f) evacuation lifts are not used for the general evacuation of the building, i.e. people other than those with disabilities or limited mobility;

g) lifts intended to remain in use in the event of fire and any ancillary equipment (such as pumps to remove water from the lift pit) are connected to a secondary power supply, with automatic change over on failure of the primary supply, of suitable power and duration as described by BS 9999. This secondary supply is located in a fire-protected area, and the primary and secondary electrical power supply cables for the lift are fire-protected and separated from each other and other power supplies;

   NOTE BS 8519 contains recommendations for fire-resistant power and control cable systems for life safety and fire-fighting applications.

h) lift wells and machinery spaces do not contain sprinklers;

i) the fire resistance of the lift well (including shared wells), the walls and doors of lobbies, fire doors, fire shutters, doors to machinery spaces, pulley and machine rooms, and any ducts containing hoses, piping or cables between machinery spaces and the lift well meets at least the minimum levels defined in BS 9991 or BS 9999 as applicable;

j) the building design, fire strategy and management arrangements required for lifts to be used by the fire and rescue services or for evacuation have been addressed, e.g. by following the recommendations in BS 9999.

1 Scope

This British Standard gives recommendations for the improvement and maintenance of fire-fighting and evacuation provisions in existing lifts. It applies to lifts installed permanently into buildings that are either already designed for fire and rescue service use or as evacuation lifts, or intended to be modified to include such features.

This British Standard is not applicable to:

- new lifts, whether in new buildings or existing buildings, installed after the publication of this standard;
- lifts where the building regulations or standards for the fire safety of buildings require or recommend a lift to the level of a new fire-fighting lift, e.g. due to extension or change of use of the building;
- double-deck lifts;
- dual entry lifts, where the firefighters lift protected lobbies are not located consistently on the same side of the lift car on all floors served by the installation;
- lifts with partially enclosed wells;
- special cases such as potentially explosive atmospheres, extreme climate conditions and seismic conditions.

This British Standard covers the significant hazards, hazardous situations and events relevant to lifts for fire and rescue service use and evacuation lifts.

NOTE 1 BS EN 81-80 contains recommendations for the general improvement in safety of existing lifts relative to the base lift design standard. BS 8899 is intended to have a similar relationship with BS EN 81-72 and the evacuation lift recommendations in BS 9999.

This British Standard applies to the lift installation only. It does not give recommendations for the fire-resisting structure of the building or other elements of the building design and management.

NOTE 2 BS 9999 and BS 9991 contain recommendations related to additional building fire safety provisions needed to support the use of fire-fighting and evacuation lifts.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 476-22, *Fire tests on building materials and structures – Part 22: Methods for determination of the fire resistance of non-loadbearing elements of construction*

BS 5655-11, *Lifts and service lifts – Part 11: Code of practice for the undertaking of modifications to existing electric lifts*

BS 5655-12, *Lifts and service lifts – Part 12: Code of practice for the undertaking of modifications to existing hydraulic lifts*

BS 8486-1, *Examination and test of new lifts before putting into service – Specification for means of determining compliance with BS EN 81 – Part 1: Electric lifts* [1)]

[1)] This British Standard contains an informative reference to BS 8486-1:2007.

BS 8486-2, *Examination and test of new lifts before putting into service – Specification for means of determining compliance with BS EN 81 – Part 2: Hydraulic lifts* [2)]

BS 9999, *Code of practice for fire safety in the design, management and use of buildings* [3)]

BS EN 81-58, *Safety rules for the construction and installation of lifts – Examination and tests – Part 58: Landing doors fire resistance test*

BS EN 81-20:2014, *Safety rules for the construction and installation of lifts – Lifts for the transport of persons and goods – Part 20: Passenger and goods passenger lifts*

BS EN 81-70:2003, *Safety rules for the construction and installation of lifts – Particular applications for passenger and goods passenger lifts – Part 70: Accessibility to lifts for persons including persons with disability*

BS EN 81-72:2015, *Safety rules for the construction and installation of lifts – Particular applications for passenger and goods passenger lifts – Part 72: Firefighters lifts*

BS EN 81-73, *Safety rules for the construction and installation of lifts – Particular applications for passenger and goods passenger lifts – Part 73: Behaviour of lifts in the event of fire* [4)]

BS EN ISO 14798, *Lifts (elevators), escalators and moving walks – Risk assessment and reduction methodology*

3 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in BS EN 81-20:2014, BS EN 81-72:2015 and the following apply.

3.1 competent person
person, suitably trained, qualified by knowledge and practical experience, provided with necessary instructions to safely carry out the required operations for maintaining or inspecting the lift, or rescuing users

3.2 control system
system which responds to input signals and generates output signals, causing the equipment under control to operate in the desired manner

3.3 evacuation
organized and controlled movement of persons in a building from a dangerous place to a safe place

NOTE Evacuation can be from floor to floor and not necessarily to outside the building.

[SOURCE: BS EN 81-72:2015, **3.2**, modified – note added]

3.4 final exit level
level at which final exits of the building for the evacuation of people are located

NOTE 1 This is not necessarily the fire service access level as defined in BS EN 81-72.

NOTE 2 There might be more than one final exit level.

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2) This British Standard contains an informative reference to BS 8486-2:2007.
3) This British Standard contains informative references to BS 9999:2008.
4) This British Standard contains informative references to BS EN 81-73:2005 and BS EN 81-73:2016.

3.5 firefighters lift
lift which has protection, controls and signals which enable it to be used under the exclusive control of the fire-fighters

[SOURCE: BS EN 81-72:2015, **3.5**]

NOTE Where the term "firefighters lift" is used throughout this British Standard, it refers to a lift installed in accordance with BS EN 81-72, which was first published in 2003.

3.6 fire-fighting lift
lift which has protection, controls and signals which enable it to be used under the exclusive control of the fire-fighters, but that are less stringent than those of a firefighters lift (**3.5**)

NOTE Where the term "fire-fighting lift" is used throughout this British Standard, it refers to a lift installed in accordance with BS 5588-5, which was first published in 1986. "Fire-fighting lifts" were superseded by "firefighters lifts" with the publication of BS EN 81-72.

3.7 modernized lift for fire service use
lift primarily intended for passengers use which has been modernized with at least the basic additional protection, controls and signals measures that enable it to be used under the direct control of the fire service

3.8 firemen's lift
lift installed before fire-fighting lift standards were made available, incorporating only simple means to recall the lift to a designated floor, with no complex lift controls or protection measures for fire and rescue service use

NOTE 1 This is also known as a fire service lift.

NOTE 2 Where the term "firemen's lift" is used throughout this British Standard, it refers to a lift installed in accordance with BS 2655 or BS 5655 for use by the fire and rescue service. "Firemen's lifts" were superseded by "fire-fighting lifts" with the publication of BS 5588-5.

3.9 fire-protected lobby
fire-protected environment providing protected access from the usage area of the building to the firefighters lift.

NOTE 1 This can be a fire-fighting lobby or a protected corridor as described in BS 9991 and BS 9999.

NOTE 2 BS EN 81-72:2015 refers to "safe areas" instead of "lobbies" as used in previous standards.

3.10 responsible person
person or persons responsible for, or having effective control over, fire safety provisions adopted in or appropriate to the premises or building or risk where a lift is installed

4 Principles

4.1 Negotiation

As the first step in the planning and design stage, negotiations should be made between the owner/customer, fire and rescue service, building control body (where required), and installer concerning:

a) the intended use of the lift;

b) environmental conditions;

c) civil engineering problems; and

d) other aspects related to the place of the installation and the rescue of persons from within the car.

NOTE 1 Examples of issues subject to negotiation include:

- *planning and phasing of fire protection and fire safety measures during the improvement work;*
- *access for the fire and rescue services where existing lifts with fire service operation are to be removed from service;*
- *provision for the evacuation of disabled people where existing lifts used for evacuation are to be removed from service;*
- *measures to address the fire risk during the improvement work.*

NOTE 2 Attention is drawn to the Building Regulations 2010 [1] and equivalent national variations ([2] to [4]) in respect of the suitability of the building structure and its resistance to fire.

4.2 Level of provision

The level of provision of features for lifts for use by the fire and rescue service or for evacuation of disabled people should not be reduced.

*NOTE 1 The downgrading of firemen's lift control switches to give a simple recall operation is such a reduction in provision and so is not recommended. See Clause **7** for the addition of fire recall operation to a lift.*

NOTE 2 Annex B gives a summary of provisions for lifts available for use in the event of fire that have been given in British Standards since 1970.

5 Lifts for fire service use

5.1 General

*COMMENTARY ON **5.1***

This British Standard gives recommendations for the improvement of existing lifts with regard to fire-fighting functionality. Only when the lift is fully upgraded to provisions specified in BS EN 81-72:2015 can the lift be deemed to be a fully functional firefighters lift.

However, any improvement of an existing lift towards the provisions of a firefighters lift is expected to have benefit to those carrying out fire and rescue operations. On this basis, where complete modernization to the requirements of BS EN 81-72:2015 is not reasonably practicable, it might be acceptable to continue to improve the features of the lift as a means to improve the safety of those persons making use of the lift for fire and rescue service operations, in line with the recommendations of BS 8899.

Any potential upgrading of the existing lift for fire-fighting access purposes should be carefully assessed and put into context as part of a wider building fire strategy and/or fire risk assessment, to ensure that additional fire protection measures are or can be provided in the building to support the use of the upgraded installation. The potential upgrading of an existing lift installation for use in the event of fire should not be completed in isolation.

NOTE 1 BS 9999 and BS 9991 contain recommendations related to additional building fire safety provisions needed to support the use of firefighters lifts.

The recommendations given in this British Standard should be met as far as is reasonably practicable for all upgrades to lifts for use by the fire and rescue service. Where the recommendations cannot be fully achieved then negotiation should take place between the owner/duty holder of the premises and the local fire and rescue authorities to determine what level of compromise would be acceptable in any given building, depending on its use.

For firefighters lifts, the checklist in Annex A should be used to determine which features already exist and those which might need to be added to existing lifts.

NOTE 2 BS 8899 can be used when assessing the potential functionality and appropriateness of existing lift installations, to help identify what modernization works might need to be completed in order for the lift to be used by the fire and rescue service.

5.2 Identification

*COMMENTARY ON **5.2***

Since the introduction of BS 2655, BS 5655 and the BS 5588 series of standards, there have been lifts classified as being for the use of fire and rescue service personnel. Variously these have been known as firemen's lifts (BS 2655 and BS 5655), fire-fighting lifts (BS 5588-5) and firefighters lifts (BS EN 81-72), but the level of equipment provided can vary greatly. As an example the simplest form of fire service lift might have nothing more than a key switch inside the lift car in order that a person inside the car has complete control over its destination, another term for this being "car preference".

This was later developed further by the addition of a switch at the main exit floor in order to be able to call the lift to that level before taking control of the car. Often this switch was marked "Fire Service" or "FB", standing for "Fire Brigade". Modern lifts for fire and rescue service use are recalled by automatic signal from the building fire detection system and/or by dedicated control at the fire service access level (FSAL). They also have a suite of other features that enable the installation to be safely used by fire-fighters.

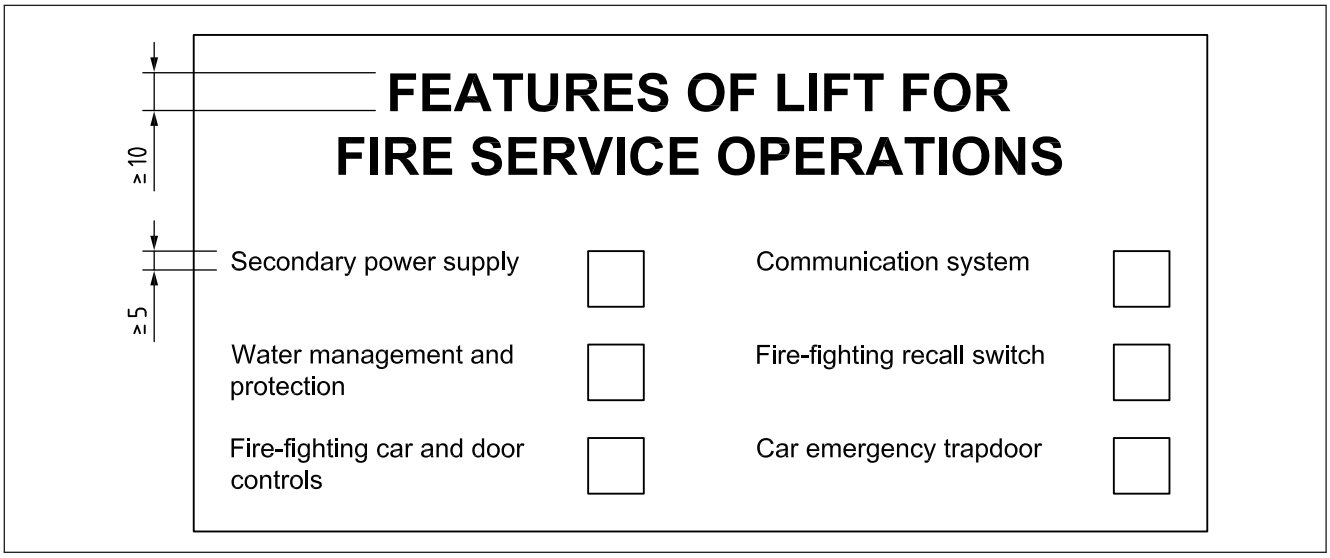
In order that the fire and rescue service personnel, when first arriving at the lift, can identify the features provided with the lift, any lift intended to be used by fire and rescue service personnel should have an indelible label as shown in Figure 1. This label should be permanently fixed as close as possible to the lift.

Where a single switch or call button is placed between lifts in a group, care should be taken to ensure that the label identifies which lift in the group has the fire-fighting features.

NOTE 1 The responsible person is expected to ensure the label is fixed and the information passed to the fire and rescue service as part of their responsibilities.

*NOTE 2 BS 9999 includes recommendations for building signage for fire-fighting lifts. BS EN 81-72:2015, **5.7.2** includes recommendations for a label at the fire service access level showing the locations of the lift main switch, emergency and testing panel or machine room.*

Figure 1 **Equipment identification label**



5.3 Fire resistance

*NOTE 1 BS EN 81-72:2015, **5.1** specifies requirements for elements of the building design that are essential for the installation of firefighters lifts.*

Lift landing doors should have fire resistance in terms of integrity which is in accordance with BS 9999, when tested in accordance with either BS 476-22 or BS EN 81-58.

NOTE 2 BS 9999 recommends different fire resistance on some lift landing doors on dual entry lifts.

When existing lifts are being modernized, the landing doors should be retained and kept locked, where possible, until they are replaced. Where this is not possible, any temporary enclosure e.g. temporary full height enclosure should provide a minimum fire resistance of 30 min in accordance with BS 9999 where the landing doors are removed.

5.4 Fundamental fire-fighting lift provisions

Wherever practicable, the modernized lift should conform to the requirements specified in BS EN 81-72:2015, **5.2**. In buildings where this is not feasible or practicable, the following principles should be adopted.

a) Deviating from the requirement for the lift car to be a minimum of 1 100 mm wide × 1 400 mm deep, exception may be made for thickness of finishes given in BS EN 81-70:2003, **5.3.1**. Where these dimensions cannot be attained, at least the existing car size should be maintained. The local fire and rescue service should be consulted to help determine whether the existing car size is acceptable.

b) Where the existing lift rated speed does not allow BS EN 81-72:2015, **5.2.4** to be met, the rated speed of the existing lift should not be reduced.

c) Deviating from the requirement for a maximum distance of 7 m between consecutive landing doorsills in BS EN 81-72:2015, **5.2.7**, exception may be made for buildings designed before the adoption of that standard.

Where practicable, the supporting structure of the car body and the materials selected for car floor, wall and ceiling finishes should conform to the requirements of BS EN 81-20, **5.4.4**. Where this is not feasible or practicable, lift car lining materials should be chosen so as to make the lift car a minimal fire risk.

NOTE BS 5588-5 gave recommendations for the lift car linings. There are no equivalent requirements in BS EN 81-72:2015 because it is intended to be used on lifts designed in accordance with BS EN 81-20:2014.

5.5 Protection of electrical equipment against water

Electrical equipment located in the lift well should be protected in accordance with BS EN 81-72:2015, **5.3**.

Where practicable, there should be a permanent means to prevent water from entering the well, such as by placing ramps or gulleys in front of each landing entrance in accordance with BS 9999. Where the existing building architecture means that this is not practicable, provision should be made to control the level of any water which finds its way into the lift well to:

a) ensure that the water level in the pit will not rise above the level of the fully compressed car buffer; and

b) prevent the water level in the pit from reaching equipment which could create a malfunction of the fire-fighting lift.

These levels should be established with the lift contractor.

Drainage solutions should avoid having pumps or other non-lift equipment in the lift well; permanently installed drainage pumps, outside the lift well, may be used. It should be possible to undertake pump maintenance from outside the lift well. As part of the building design, account should be taken of the required capacity of pumps and of the need to ensure their continued availability in the event of a fire, i.e. they should be fed from a secondary supply in event of a primary supply failure.

5.6 Rescue of trapped fire-fighters in the lift car

Where practicable, an emergency trap door should be provided in the roof of the lift car for fire and rescue service use to the following recommendations. Where this is not practicable, then further discussion with the fire and rescue service should be undertaken to determine whether a lift without an emergency trap door is acceptable.

Where an emergency trap door is provided, the following recommendations should be met.

a) The emergency trap door should have minimum dimensions of 0.4 m × 0.5 m. Where space allows, the size should be increased to 0.5 m × 0.7 m.

b) All other aspects of the emergency trap door construction and locking should be in accordance with BS EN 81-20:2014.

c) Opening of the emergency trap door should be unhindered and in accordance with BS EN 81-72:2015, **5.4.1.2** and **5.4.1.3**.

5.7 Car doors and landing doors

Automatically operated horizontal sliding (coupled) car and landing doors should be used.

5.8 Control systems

Where practicable, the modernized lift control system should conform to the requirements specified in BS EN 81-72:2015, **5.8** with the following exceptions.

a) Where the lift does not fully conform to BS EN 81-72:2003 or BS EN 81-72:2015, the fire-fighting lift switch should not be marked with the pictogram in Annex G of those standards and should instead be labelled as described in **5.2**.

b) Keys other than those described in BS EN 81-20:2014, **5.3.9.3** should not be used to operate the fire-fighting lift switch.

NOTE The inclusion of a car key switch for fire-fighters service is not recommended (see National Foreword to BS EN 81-72:2015).

5.9 Changeover of electrical supplies

On a loss of the primary electrical supply and changeover to the secondary supply, the lift should operate as required in BS EN 81-72:2015, **5.10**.

5.10 Car and landing controls

The modernized lift should conform to the requirements specified in BS EN 81-72:2015, **5.11**. Whilst on phase 2 control, operation of the fire-fighting lift should be by means of a full set of push buttons in the car.

In the case of a dual entry car where all the fire-protected lobbies are on the same side as that at the fire service access level, the car controls should conform to the requirements specified in BS EN 81-72:2015, **5.8.9.1**.

*NOTE The recommendations in BS 9999 for dual entry fire-fighting lifts assume that all the fire-fighting lift lobbies are located on the same side as that of the fire service access level, which is the situation described in BS EN 81-72:2015, **5.8.9.1**. BS 9999 does not cover the situation described in BS EN 81-72:2015, **5.8.9.2**.*

Keypads should not be installed in place of lift car push buttons for use in phase 2.

5.11 Fire service communication system

The lift should have an intercom system or similar device installed between the lift car, the fire service access level and the machine room/emergency panel as described in BS EN 81-72:2015, **5.12**.

6 Evacuation lifts

6.1 General

*COMMENTARY ON **6.1***

Building fire protection measures are required in order to support the use of an evacuation lift. These include the provision of designated refuge areas and associated communication equipment, protected lobbies, and enclosing structure with specific fire resistance requirements.

In order to be deemed to be a fully functional evacuation lift, the lift should be upgraded to be in accordance with BS 9999.

Any proposed provision and use of an evacuation lift should be carefully assessed and put into context as part of a wider building fire strategy and/or fire risk assessment, to ensure that these additional fire protection measures are or can be provided in the building.

NOTE 1 Annex C gives the minimum provisions for lifts to be used in the evacuation of disabled people.

*NOTE 2 BS 9999:2008, **46.9** gives guidance on circumstances where a lift not originally designed for evacuation may be used for that purpose, subject to the completion of a suitable fire risk assessment. As part of this, building-wide fire protection measures need to be assessed along with the potential capacity for the existing lift to be upgraded.*

6.2 Identification

Evacuation lifts should be identified in accordance with BS 9999.

7 Recall of lifts in the event of fire

7.1 General

In order to be deemed to have a fully functional fire recall facility, lifts should be upgraded to be in accordance with BS EN 81-73.

NOTE 1 The National Foreword to BS EN 81-73:2016 includes important guidance on the door operation when the lift parks at the designated landing.

NOTE 2 Where the lift is for fire and rescue service use or is an evacuation lift, the building fire detection and alarm system can be used to provide the priority recall. BS EN 81-73 is not applicable to lifts used for fire and rescue service use or for evacuation as the intention of BS EN 81-73 is to remove a lift from service in the event of the recall signal being activated.

*NOTE 3 BS EN 81-80:2003, **5.4** addresses the case of no or inadequate control function in the event of fire.*

7.2 Identification

Manual recall devices should be identified in accordance with BS EN 81-73.

8 Routine inspection, maintenance and thorough examination

*COMMENTARY ON CLAUSE **8***

Fire-fighting lifts are primarily supplied for the use of the fire and rescue services. Evacuation lifts are primarily supplied for the evacuation of disabled people. Attention is drawn to the Regulatory Reform (Fire Safety) Order 2005 [5], in respect of the need for such lifts to be adequately maintained and periodically examined in order to ensure that their technical features and controls remain in good working order. Attention is also drawn to the Fire Safety (Scotland) Regulations 2006 [6]; and the Fire Safety Regulations (Northern Ireland) 2010 [7].

8.1 Routine maintenance

A suitable programme of maintenance for the lift should be agreed between the responsible person and the lift maintenance contractor. The responsible person should ensure that equipment not part of the lift (such as secondary supplies, supply changeover equipment, any pit drainage pumps, fire-fighting or evacuation communications systems, automatic recall devices, external indicators and any labelling) is subject to a suitable programme of maintenance.

NOTE 1 BS 9999 provides advice on the routine inspection and maintenance of fire safety installations and includes lifts in its advice along with sprinkler systems, hydrants, etc. In relation to lifts it provides the following advice.

a) Weekly. The operation of the evacuation lift and firefighters lift switches is to be tested once a week and these are to be repaired or replaced if found defective.

b) Monthly. A failure of the primary electricity supply is to be simulated. If a generator provides the standby supply it needs to energize the lift(s) for at least 1 h.

c) Yearly. Arrangements are to be made for an annual test of various items of fire-fighting plant, including evacuation and fire-fighting lifts, and a certificate of test is to be obtained and retained by the owner. This test needs to ensure that all the lift operations related to fire-fighting operation are checked, not just that the car returns to the main landing. As many such lifts will be connected to a building management system (BMS) the testing needs to be co-ordinated with those conducting the testing of any BMS.

NOTE 2 Annex D provides an example of an annual firefighters lift operational inspection report.

8.2 Thorough examination of lifts in service

The responsible person should ensure that all fire-fighting and/or evacuation features and functions of the lift are thoroughly examined periodically.

NOTE 1 Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) [8] in respect of the requirement for a thorough examination of lift equipment intended for the transportation of persons to be undertaken by a competent person in order to ensure that it has not deteriorated during use to the point where it becomes hazardous to persons.

NOTE 2 An example of an annual firefighters lift condition report is shown in Annex D.

The responsible person should ensure that equipment not part of the lift (such as secondary supplies, supply changeover equipment, any pit drainage pumps, fire-fighting or evacuation communications systems, automatic recall devices, external indicators and any labelling) is examined and tested where necessary on a similar schedule.

The competent person undertaking thorough examination may call for equipment not part of the lift to have supplementary testing carried out. The responsible person should ensure that such supplementary testing is carried out and the results communicated to the competent person.

8.3 Thorough examination of a lift after a significant modification

After significant modification and improvement of a lift for fire and rescue service use or evacuation lift, the equipment and controls described in Clause **5** or Clause **6** should be part of a thorough examination process, in order to prevent as far as possible hazardous conditions for users and fire and rescue personnel from occurring.

NOTE Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) [8] in respect of the requirement for a thorough examination of lift equipment intended for the transportation of persons to be carried out by a competent person each time exceptional circumstances have occurred that are liable to jeopardize the safety of the lifting equipment.

9 Modernization and risk assessment

All modernization work carried out to an existing lift should be in accordance with BS 5655-11 or BS 5655-12.

A risk assessment should be carried out in accordance with the principles in BS EN ISO 14798 before any modernization is undertaken.

10 Testing, verification and documentation

10.1 Testing and verification

Following modernization, the lift should be tested in accordance with the recommendations given in BS 5655-11 or BS 5655-12. All elements of the lift which have been modified or added should be verified in accordance with the latest standards defining such equipment, e.g. BS EN 81-20 and BS EN 81-72.

All elements with recommendations in this standard, whether modified or not, should be tested using the relevant tables in BS 8486-1 or BS 8486-2. Any non-conformities, e.g. from previous standards, should be marked up as appropriate on the test sheets.

NOTE 1 Other elements not related to recommendations in BS 8899 which have remained unchanged may be tested at least using standards appropriate to the installation of the lift, e.g. BS 2655-1, BS 5655-10, BS 5655-10.1.1 and BS 5655-10.2.1, PAS 32-1 and PAS 32-2.

*NOTE 2 Recommendations for thorough examination of a lift after a significant modification are given in **8.3**.*

10.2 Documentation

All significant modifications to the lift should be documented and placed within the original lift owner's manual, where this is present. Where this is not present, documentation of the changes should be given to the owner.

Any additional documents relating to negotiations and agreements made with the local fire and rescues service in relation to the specification of the modernized lift for fire service use should be kept with the original lift owner's manual or given to the owner.

All records of periodic examination should also be retained with the original documentation.

NOTE 1 An example of an annual firefighters lift operational inspection report is shown in Annex D.

NOTE 2 Attention is drawn to the Lift Regulations 1997 [9] in respect of the requirement for new lifts to be accompanied by instructions. This means information has to be provided to the owner regarding how the lift is intended to operate, including advice to the owner on the need for regular maintenance and inspection. BS EN 13015 specifies requirements for such instructions.

Annex A (normative) Survey of existing firefighters lift features

In order to determine which features already exist and those which might need to be added to existing lifts, Table A.1 should be used to determine the level of conformity to BS EN 81-72.

NOTE 1 Table A.1 refers to the clauses in BS EN 81-72:2015 and lists the elements of the lift provision. It does not include elements of the building and building design not included in BS EN 81-72, which are assumed to have been addressed by the building designer. However, where appropriate, references to these are included in the "remarks" column.

NOTE 2 Table A.1 includes references to both BS EN 81-72:2015 and BS EN 81-72:2003 and, by so doing, provides a cross-reference between the requirements of the two standards.

Table A.1 **Firefighters lift check-list for existing lifts** *(1 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
	Environmental/building requirements						
1	Each landing door is in a fire-protected lobby.	**5.1.1** **5.1.3**	**5.1.1**	Yes ❑ No ❑	Suitable fire-protected lobby to be provided.	Yes ❑ No ❑	
2	There is fire protection to lobbies, lift well, landing doors, machinery spaces, power supply and other building requirements.	**5.1.1**	**5.1.2**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	
3	All lifts in a common well have the same level of fire protection.	**5.1.1**	**5.1.3**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	
4	Any lift landing door not protected by the fire-fighting lobby is protected to a similar standard, e.g. by a fire shutter or fire door.	**5.1.4**	**5.1.4**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	
5	The firefighters lift has a secondary power supply.	**5.1.5**	**5.1.5**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	*See also BS 9999 for secondary supplies*
6	The power supply cable(s) are fire-protected.	**5.1.6**	**5.1.6**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	*See also BS 9999*
7	The source of the secondary power supply and change-over device is in a fire-protected area.	—	**5.1.7**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	*See also BS 9999 for secondary supplies*
8	Measures required for air pressurized well.	—	**5.1.8**	Yes ❑ No ❑	Measures as BS EN 81-72:2015, **5.1.8**.	Yes ❑ No ❑	*Not a requirement to pressurize the well*
	Fundamental firefighters lift requirements						
9	The firefighters lift conforms to BS EN 81-20 where applicable.	**5.2.1**	**5.2.1**	Yes ❑ No ❑	General modernization required of lift safety features. See BS EN 81-80.	Yes ❑ No ❑	*BS EN 81-20:2015, **5.4.4** includes requirements for car materials – see **5.4** in the present standard*
10	A firefighters lift serves every floor of the building. *NOTE BS EN 81-72:2015 (see **1.4**) does not define the floors to be served during firefighting operations which is defined by the building design.*	**5.2.2**	—	Yes ❑ No ❑	Serve all floors required by fire and rescue authority. See Introduction, c).	Yes ❑ No ❑	*BS EN 81-72:2015 does not require FFL to serve every floor*

Table A.1 **Firefighters lift check-list for existing lifts** *(2 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
11	Minimum car size = 1 100 mm × 1 400 mm	**5.2.3**	**5.2.2**	Yes ❑ No ❑	Provide car of at least minimum size. See **5.4**.	Yes ❑ No ❑	*Consultation with FRS if sizes cannot be attained*
	Minimum capacity = 630 kg	**5.2.3**	**5.2.2**	Yes ❑ No ❑	Provide car of at least minimum capacity. See **5.4**.	Yes ❑ No ❑	
	Minimum clear entrance width = 800 mm	**5.2.3**	**5.2.2**	Yes ❑ No ❑	Provide doors of at least minimum clear entrance width.	Yes ❑ No ❑	
12	If firefighters lift is to be used for evacuation to accommodate such items as a stretcher or bed:				Negotiation over use of the lift. See **4.1**.	Yes ❑ No ❑	*Not a requirement for evacuation lifts*
	Minimum car size = 1 100 mm × 2 100 mm	**5.2.3**	**5.2.3**	Yes ❑ No ❑			
	Minimum capacity = 1 000 kg	**5.2.3**	**5.2.3**	Yes ❑ No ❑			
13	Furthest landing can be reached within 60 s from the closing of the lift doors at the FSAL.	**5.2.4**	**5.2.4**	Yes ❑ No ❑	Increase rated speed or retain rated speed. See **5.4**b).	Yes ❑ No ❑	
14	All landing electrical equipment other than at FSAL operates in temperatures up to 65 °C for 2 h.	**5.1.2**	**5.2.5**	Yes ❑ No ❑	Replace electrical equipment on landings in accordance with **5.4**.	Yes ❑ No ❑	
	All other electrical equipment functions at temperatures between 0 °C and 40 °C.	**5.1.2**	**5.2.5**	Yes ❑ No ❑			
	Equipment is not affected by smoke.	**5.1.2**	**5.2.5**	Yes ❑ No ❑			
	Any ambient temperature sensor does not stop or prevent restart of firefighters lift.	**5.1.2**	**5.2.5**	Yes ❑ No ❑			
15	For a dual entry car, no more than one car door opens at any time during fire-fighting operations.	—	**5.2.6**	Yes ❑ No ❑	Solution in accordance with **5.4**.	Yes ❑ No ❑	
16	Maximum distance between consecutive sills is not greater than 7 m.	—	**5.2.7**	Yes ❑ No ❑	Building design solution required or deviation as described in **5.4**c).	Yes ❑ No ❑	

Table A.1 **Firefighters lift check-list for existing lifts** *(3 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
17	Any lift sharing the same well not required to stay in operation in the event of fire is recalled as specified in BS EN 81-73.	—	**5.2.8**	Yes ❑ No ❑	Solution in accordance with **5.4**.	Yes ❑ No ❑	
18	Firefighters lift well and machinery spaces do not contain sprinklers.	—	**5.2.9**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	
	Protection of electrical equipment against water						
19	Electrical equipment in the well within 1 m of the landing doors is protected from dripping and splashing water (BS EN 60529:1992+A2, IPX3).	**5.3.1**	**5.3.1**	Yes ❑ No ❑	Protect electrical equipment. See **5.5**.	Yes ❑ No ❑	
	Electrical equipment in the well below highest landing 1 m away from a wall containing a landing door is protected against dripping water (BS EN 60529:1992+A2, IPX1).	—	**5.3.1**	Yes ❑ No ❑			
20	Electrical equipment less than 1 m from pit floor is to BS EN 60529:1992+A2, IP67.	**5.3.2**	**5.3.2**	Yes ❑ No ❑	Protect electrical equipment. See **5.5**.	Yes ❑ No ❑	
	The socket outlet and lighting is 500 mm above the level of any water.	**5.3.2**	**5.3.2**	Yes ❑ No ❑			
21	Equipment outside the well and machinery spaces is protected from faults caused by water.	**5.3.3**	**5.3.3**	Yes ❑ No ❑	Protect electrical equipment. See **5.5**.	Yes ❑ No ❑	
22	Means are provided to prevent water ingress into the lift well, or measures are provided in the pit to ensure that water does not rise above compressed buffer and to prevent water reaching a level which could create a malfunction of the lift.	**5.3.4** **5.3.5**	**5.3.4**	Yes ❑ No ❑	Provide water management. See **5.5**.	Yes ❑ No ❑	
23	Car roof is designed to prevent accumulating water and draining from the roof.	—	**5.3.5**	Yes ❑ No ❑	Provide water management. See **5.5**.	Yes ❑ No ❑	
	Electrical equipment within the car roof and outer walls to be BS EN 60529:1992+A2, IPX3.	—	**5.3.5**	Yes ❑ No ❑	Protect electrical equipment. See **5.5**.	Yes ❑ No ❑	

Table A.1 **Firefighters lift check-list for existing lifts** *(4 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
	Rescue of trapped fire-fighters in the lift car						
24	Emergency trap door to be provided in car roof: • 630 kg lift: at least 0.4 m × 0.5 m; • All other sizes: at least 0.5 m × 0.7 m.	**5.4.1**	**5.4.1.1**	Yes ❑ No ❑	Provide emergency trapdoor of at least minimum required size. See **5.6**.	Yes ❑ No ❑	
25	Trapdoor conforms to BS EN 81-20 requirements for strength and locking. Access from inside is not obstructed by permanent fixtures or lighting. Suspended ceiling is removable without special tools. Handling force of any suspended ceiling is less than 250 N. Release point is identified inside the car. Measures are provided against uncontrolled falling of the suspended ceiling. Opening is possible with fire-fighters in the lift car.	**5.4.2**	**5.4.1.2**	Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑	Provide emergency trapdoor locking and access. See **5.5**.	Yes ❑ No ❑	
26	If emergency trap door is open, it does not reset its switch if reclosed without making resetting a positive action. Whenever the trap door is open, further operation of the lift is prevented.	—	**5.4.1.3**	Yes ❑ No ❑	Provide emergency trapdoor locking and access. See **5.6**.	Yes ❑ No ❑	
27	Ladders have been provided.	**5.4.5** **5.4.6** **5.4.7**	**5.4.2**	Yes ❑ No ❑	Retain existing provision.	Yes ❑ No ❑	
28	Means of rescue from outside the car have been provided.	**5.4.3**	**5.4.3**	Yes ❑ No ❑	Retain existing provision.	Yes ❑ No ❑	
29	Means of self-rescue from inside the car have been provided.	**5.4.4**	**5.4.4**	Yes ❑ No ❑	Retain existing provision.	Yes ❑ No ❑	
30	Separate piping between machinery space and well is protected to the same fire protection level as given to the lift well structure.	—	**5.5**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	

Table A.1 **Firefighters lift check-list for existing lifts** *(5 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
	Car doors and landing doors						
31	Doors are automatic, power operated, and horizontal sliding.	**5.6**	**5.6**	Yes ❑ No ❑	Provide doors of required clear entrance width and power operated. See **5.7**.	Yes ❑ No ❑	
	Lift machine and associated equipment						
32	Machinery spaces are protected to the same fire protection level as the well.	—	**5.7.1**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	
33	Any cables between fire-protected areas are equally fire-protected.	—	**5.7.2**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	*See also BS 9999 for secondary supplies*
	Control systems						
34	Firefighters lift switch is within 2 m horizontally of landing doors at FSAL and between 1.4 m and 2.0 m high.	**5.8.1**	**5.8.1**	Yes ❑ No ❑	Provide controls in accordance with **5.8**.	Yes ❑ No ❑	
	Switch is marked with firefighters lift pictogram.	**5.8.1**	**5.8.1**	Yes ❑ No ❑	Provide pictogram (if lift conforms to BS EN 81-72) or signage in accordance with **5.8**.	Yes ❑ No ❑	
35	Switch is operated via triangular release key.	**5.8.2**	**5.8.2**	Yes ❑ No ❑	Provide controls in accordance with **5.8**.	Yes ❑ No ❑	
	Operating positions are marked "0" and "1".	**5.8.2**	**5.8.2**	Yes ❑ No ❑			
36	On operation of switch, all safety devices (electrical and mechanical) remain operative except door open devices effected by heat or smoke (light curtains, etc.).	**5.8.3**	**5.8.3**	Yes ❑ No ❑	Provide controls in accordance with **5.8**.	Yes ❑ No ❑	
37	Firefighters lift switch does not override inspection control, stop switches or emergency electrical operation.	**5.8.4**	**5.8.4**	Yes ❑ No ❑	Provide controls in accordance with **5.8**.	Yes ❑ No ❑	
38	When on fire-fighters service, the lift is not affected by faults in landing equipment (buttons and indicators) or parts of other interconnected lifts (duplex, triplex, etc.).	**5.8.5**	**5.8.5**	Yes ❑ No ❑	Provide controls in accordance with **5.8**.	Yes ❑ No ❑	

Table A.1 **Firefighters lift check-list for existing lifts** *(6 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
39	Interruption of an interface connection: • between the firefighters lift switch and the lift control system initiates phase 1 whilst the lift is in normal operation; • between the firefighters lift switch and the lift control system does not change the mode of operation of the lift whilst in the fire service mode; • between the car key switch and the lift control system changes the mode of operation equal to car key switch position "1".	— — —	**5.8.6** **5.8.6** **5.8.6**	Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑	Provide controls in accordance with **5.8**.	Yes ❑ No ❑	
40	On initiation of phase 1 priority recall, audible signal sounds on the car and in relevant machinery spaces if the lift is under inspection operation, emergency electrical operation or any maintenance control. The sounder is adjustable between 35 dB(A) and 65 dB(A) and set at 55 dB(A). The audible signal is cancelled when the firefighters lift is removed from inspection operation, emergency electrical operation or any maintenance control and then FFL automatically continues phase 1 operation.	**5.8.6**	**5.8.7**h)	Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑	Provide controls in accordance with **5.8**.	Yes ❑ No ❑	

Table A.1 **Firefighters lift check-list for existing lifts** *(7 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
41	Phase 1: Priority recall for the firefighters lift	**5.8.7**	**5.8.7**a) to **5.8.7**f)		Provide controls in accordance with **5.8**.	Yes ❑ No ❑	
	Lift well and machinery spaces are automatically illuminated when firefighters lift switch operated.			Yes ❑ No ❑			
	All controls (car and landing) are inoperative and all registered calls cancelled, with the exception of the car "door open" button and alarm button.			Yes ❑ No ❑			
	The lift operates independently of a common group.			Yes ❑ No ❑			
	Fire service communication equipment becomes operative.			Yes ❑ No ❑			
	Visual signal in Figure G.1 on car operating panel (COP) illuminated.			Yes ❑ No ❑			
	Lift operates as follows: • if parked at a landing, doors close and lift travels nonstop to the fire service access level; • an audible signal sounds in the car until the doors are closed. If doors not closed after 15 s, all heat and smoke sensitive door protection devices disabled and doors attempt to close under reduced power.			Yes ❑ No ❑			
	If travelling away from the FSAL the lift stops at the next floor and then returns to the FSAL without opening its doors.			Yes ❑ No ❑			
	if travelling towards the FSAL, the lift continue its travel non-stop to FSAL (if already stopping, it may stop but not open doors before continuing to FSAL.			Yes ❑ No ❑			
	Lift parks with doors open once arrived at FSAL.			Yes ❑ No ❑			

Table A.1 **Firefighters lift check-list for existing lifts** *(8 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
42	Phase 2: Use of the lift under firefighters control	**5.8.8**	**5.8.8**		Provide controls in accordance with **5.8**.	Yes ❑ No ❑	
	The lift is parked at FSAL with doors open.			Yes ❑ No ❑			
	Control of the lift is only possible from the car operating panel.						
	Where lift recall was from a building management system (BMS) or fire alarm the lift remains inoperative until the FF switch has been activated.			Yes ❑ No ❑			
	Only one car call is registered at a time.			Yes ❑ No ❑			
	A new call may be registered and the previous call is cancelled.			Yes ❑ No ❑			
	On arrival at a floor the doors remain closed.			Yes ❑ No ❑			
	The doors can only be opened by constant pressure on the “door open” button.			Yes ❑ No ❑			
	If the “door open” button is released before the doors are within 50 mm of fully open, they close.			Yes ❑ No ❑			
	When the doors are within 50 mm of fully open, they re-close only when a new car call is registered from within the car.			Yes ❑ No ❑			
	Constant pressure on car call button or door close button closes the doors.			Yes ❑ No ❑			
	Car call can be registered once doors are fully closed.			Yes ❑ No ❑			
	The car can be returned to the FSAL by operating the FF switch from “1” to “0”, for at least 5 s, and back to “1”.			Yes ❑ No ❑			
	The registered car call is displayed on the COP (illuminated button).			Yes ❑ No ❑			
	The car position is displayed at the car and FSAL.			Yes ❑ No ❑			

Table A.1 **Firefighters lift check-list for existing lifts** *(9 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
42 (cont)	The fire service communication system remains operative. On returning the FF switch to "0", the lift only returns to normal service after stopping at the FSAL.			Yes ❑ No ❑ Yes ❑ No ❑			
43	Where lift is open through and the fire-fighting doors and lobbies are all on the same side as the FSAL, the lift car has two COPs. The COP adjacent to the FSAL door is marked with the firefighters lift pictogram. The other COP is inactive when on fire-fighting service except for door open and alarm buttons. Landing doors not protected by fire-fighting lobbies remain closed.	**5.8.9**	**5.8.9**	Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑	Provide controls in accordance with **5.8**, **5.10**.	Yes ❑ No ❑	*Situation with fire-fighting doors and lobbies not all on the same side as the FSAL is not included in this standard or in BS 9999*
	Power supplies for firefighters lifts						
44	Consists of primary and secondary supply. Fire-protected to same level as lift well.	**5.9.1**	**5.9.1**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	*See also BS 9999 for secondary supplies*
45	The secondary supply is sufficient to run the lift at full load and at rated speed.	**5.9.2**	**5.9.2**	Yes ❑ No ❑	Building design solution required.	Yes ❑ No ❑	*See also BS 9999 for secondary supplies*
	Changeover of electrical supplies						
46	There is no correction run. The lift is working on reconnection of supply. If movement is needed to find position: • it is towards the FSAL; • the lift does not move more than two floors; • the lift indicates its position.	**5.10** **5.10** **5.10**	**5.10** **5.10** **5.10**	Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑	Control system to recognize power loss and change over and act accordingly. See **5.9**.	Yes ❑ No ❑	*See BS 9999:2008, Clause **29** for power supply indication at the fire service access level*

Table A.1 **Firefighters lift check-list for existing lifts** *(10 of 10)*

No.	Items to be checked	Clause in BS EN 81-72:2003	Clause in BS EN 81-72:2015	Requirement fulfilled?	Safety improvement according to BS 8899	Possible to be adopted?	Remarks
	Car and landing controls						
47	Car and landing controls do not cause false signals from effects of heat, smoke or moisture.	**5.11.1**	**5.11.1**	Yes ❑ No ❑	Provide car and landing controls to **5.10**.	Yes ❑ No ❑	
48	Car controls, car position indicator, FSAL position indicator and firefighters lift switch are to BS EN 60529:1992+A2, IPX3. Landing control panels and landing indicators not at FSAL are to BS EN 60529:1992+A2, IPX3 unless electrically disconnected when under fire-fighting control.	**5.11.2** **5.11.2**	**5.11.2** **5.11.2**	Yes ❑ No ❑ Yes ❑ No ❑	Provide controls to **5.10**.	Yes ❑ No ❑	
49	Whilst on phase 2 the control of the lift car is only from the car operating panel. All other controls are inoperative.	**5.11.3**	**5.11.3**	Yes ❑ No ❑	Provide controls to **5.10**.	Yes ❑ No ❑	
50	FSAL is clearly marked by a pictogram on the appropriate floor level button inside the car.	**5.11.4**	**5.11.4**	Yes ❑ No ❑	Provide controls to **5.10**.	Yes ❑ No ❑	
	Fire service communication system						
51	Fire service communication system has the following functions. • Two-way speech whilst on fire-fighting service. • Lift car to FSAL. • Lift car to machine room or emergency and test panel. • Other location as option. • If in a machine room, this device is only made active by pressing a button on it.	**5.12.1**	**5.12.1**	Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑ Yes ❑ No ❑	Provide communication system in accordance with **5.11**.	Yes ❑ No ❑	
52	The communication system at the FSAL and car is an intercom, not a telephone handset.	**5.12.2**	**5.12.2**	Yes ❑ No ❑	Provide communication system in accordance with **5.11**.	Yes ❑ No ❑	
53	All wiring for the communication system runs through the lift well.	**5.12.3**	**5.12.3**	Yes ❑ No ❑	Provide communication system in accordance with **5.11**.	Yes ❑ No ❑	

Annex B (informative) Past provisions for lifts with operation in the event of fire

Table B.1 gives a summary of provisions for lifts with operation in the event of fire that have been given in British Standards since 1970.

Table B.1 **Summary of past provisions for lifts with operation in the event of fire** *(1 of 5)*

Type of lift and relevant standard	Key lift provisions	Key building provisions	Test and maintenance
Firemen's lift BS 2655-1:1970	1.45 m^2 550 kg min. car size 0.8 m clear opening doors Full height travel in 60 s "FIRE CONTROL" switch adjacent to lift opening at fire control floor level Operation of switch not to override safety devices and maintenance switches; lift recalls to fire control level and parks with doors open; then lift operates from car controls only with collective control disabled	Where more than one lift, signage making clear which is the firemen's lift Electrical supply exclusive to lift and routed through negligible fire risk	No tests or checks listed
Firemen's lift BS 5655-1:1979	Lift car at least 1.4 m^2, rated load at least 630 kg 0.8 m clear opening doors Rated speed so that complete travel time does not exceed 60 s "FIRE SERVICE" break glass switch on evacuation level landing. Operation of fire service switch ensures the priority recall of the car which, after its arrival at the evacuation level, operates without responding to "landing" calls. Having arrived at the specified level, it remains with its door open until a fresh instruction is made from inside the car	Building to avoid exposing these lifts to unacceptably high temperatures and to avoid having the water used to fight the fire flowing into the lift wells Either for the "firemen's lift" serves all the levels or several "firemen's lifts" together allow access to all the levels of all the building divisions	No tests or checks listed
Fire-fighting lift BS 5588-5:1986	1.1 m × 1.4 m/630 kg min. car size 0.8 m clear opening power operated doors Fire-resistant car linings Full height travel in 60 s Trap door in car One set of car doors only Fire service communications system – two-way speed communication system between fire-fighting lift car, FSAL and lift machine room when fire-fighting switch is on "FIREFIGHTING LIFT" switch brings lift to FSAL and park with doors open Fire-fighting control only from car – one car call only; doors open only from door open button (reclose if button released before doors fully open); new car call closes doors	Recommendations for fire-fighting shaft, protected lobbies at each landing, machine room location, etc. Either building measures to control water (drainage channels or ramped landings) or lift electrical equipment protected to IP03 Primary and secondary electrical supplies protected against fire	Operational tests in Annex A

Table B.1 **Summary of past provisions for lifts with operation in the event of fire** *(2 of 5)*

Type of lift and relevant standard	Key lift provisions	Key building provisions	Test and maintenance
Fire-fighting lift BS 5588-5:1991	Based on assumption of lift machine room. Similar to BS 5588-5:1986; and Electrical equipment within 1 m of any wall separating the lift well from a lift lobby protected to IPX3	Similar to BS 5588-5:1986 plus recommendations for either pressurization or natural ventilation	Operational tests in Annex C
Fire-fighting lift BS 5588-5:2004	As BS EN 81-72:2003.	As BS EN 81-72:2003.	As BS EN 81-72:2003.
Firefighters lift BS EN 81-72:2003	Allows machine room-less lifts (MRLs) 1.4 m × 1.1 m/630 kg min. car size except 2.1 m × 1.1 m/1 000 kg if used to evacuate stretchers or dual entry firefighters lift (open an two sides at the same level) 0.8 m clear opening power operated doors Full height travel in 60 s Trap door in car Dual entry lift allowed Fire service communications system – two-way speed communication system between firefighters lift car, FSAL and lift machine room when firefighters lift switch is on Firefighters lift switch marked with pictogram brings lift to FSAL and park with doors open Firefighters control only from car – one car call only; doors open only from door open button (reclose if button released before doors fully open); new car call closes doors Electronic landing controls and indicators continue to function 0 °C to 65 °C Electrical equipment within 1 m of any wall separating the lift well from a lift lobby should be protected to IPX3 Means of rescue from outside the car (under UK regulations) Means of self-rescue from car, e.g. ladders	Building recommendations included in BS 5588-5:1991 until replaced by BS 9999:2008 and BS 9991:2011 Requirements for fire-fighting shaft, lobbies, machine room location, etc. Building measures to control water (drainage channels or ramped landings) Primary and secondary electrical supplies protected against fire	Installer test to meet BS EN 81-72:2003, Clause **6** BS 8486-1:2007 included tests for firefighters lifts

Table B.1 **Summary of past provisions for lifts with operation in the event of fire** *(3 of 5)*

Type of lift and relevant standard	Key lift provisions	Key building provisions	Test and maintenance
Firefighters lift BS EN 81-72:2015	Main technical changes from BS EN 81-72:2003: • "Safe area" is used in place of "lobby" to be consistent with DD CEN/TS 81-76. The two terms are interchangeable. • Revision of the elements dealing with building design and the inclusion of a new informative annex on the building interface. Items to be considered in the use of pressurization of lift wells have been added including the noise level at the fire communication points. • Deletion of the requirement for a firefighters lift to serve every floor of the building. The floors to be served are assumed to be determined as part of the design of the building for fire. • New requirements for protection of electrical equipment against water; in the lift well and the roof and walls of the lift car. • New measures to prevent water ingress into the lift well which are strongly preferred over to measures to control the level of water in the lift pit alone. The measures considered are described in a new annex on water management. • Revision of clauses dealing with the rescue of trapped fire-fighters with rationalized requirements for movable ladders and reduced maximum distance between consecutive landings. The use of fixed ladders and rope ladders have been removed. • New requirements for the interface between firefighters lift switches and the control system. • New requirements for dual entry lift cars where not all the safe areas to be used in fire-fighting operations are on the same side, i.e. more than one car door could be used during fire-fighting operations. • Revision of requirements for the control system including new requirements for when a firefighters lift key switch is used in the lift car (subject to negotiation). Revised requirements, in phase 2, for car doors to close under constant pressure from door close or car call buttons and for opening. • Addition of requirements for keypad operation of the firefighters lift car in phase 2. • Inclusion of a new informative annex on maintenance requirements.		

Table B.1 **Summary of past provisions for lifts with operation in the event of fire** *(4 of 5)*

Type of lift and relevant standard	Key lift provisions	Key building provisions	Test and maintenance
Evacuation lift BS 5588-8:1988	"Evacuation lift" switch – except for two storey Evacuation control – return to final exit level, isolate landing controls, control only from car controls Communication system except in two storey building linking each landing and lift car – controls, telephone or radio system Controls to meet BS 5810 (disabled access)	In a protected enclosure including lift well and lobbies on each storey Primary electrical supply exclusive and independent Secondary electrical supply except on hydraulic lifts serving two storeys	
Evacuation lift BS 5588-8:1999	"Evacuation lift" switch – now on all evacuation lifts Otherwise as BS 5588-8:1988	As BS 5588-8:1988	
Evacuation lift BS 9999:2008, **G.2**	As BS 5588-8:1999, except evacuation lift also to meet BS EN 81-70	As BS 5588-8:1999, except: More on refuges More on secondary supplies	
Fire recall BS EN 81-73:2005	On operation of recall device, car and landing controls inoperative, calls cancelled and lift travels to designated landing and parks with doors open. No entry sign at designated landing.	Specification of manual or automatic recall device	Installer test to meet BS EN 81-73:2005, Clause **6** BS 8486-1:2007, Annex E and BS 8486-2:2007, Annex E included tests for fire recall

Table B.1 **Summary of past provisions for lifts with operation in the event of fire** *(5 of 5)*

Type of lift and relevant standard	Key lift provisions	Key building provisions	Test and maintenance
Fire recall BS EN 81-73:2016	Main technical changes since BS EN 81-73:2005 are: • use of "recall means" to denote either a manual recall device or automatic recall device e.g. fire alarm system; • changes to the assumptions including items subject to negotiations; • revision of clauses dealing with recall means, interface requirements and designated landings. Addition of a sign to manual recall devices; • clarification that fire recall signals are not to override maintenance controls; • change in the reference of the prohibition sign; • changes to the behaviour of the lift on receipt of a recall signal including requirements for a sounder on the car if the lift is under maintenance control and a sounder in the car when doors are closing with provision to make passenger protection devices inactive if doors have not closed after a delay; • changes to the behaviour of the lift once arrived at the designated landing including requirements for audible and/or visual indication and options for the lift to park with doors open or closed; • deletion of requirements for a separate reset signal and for a "no entry" indicator; • inclusion of a new informative annex on maintenance requirements.	Specification of: • type of recall means and its interface; • type and protection of switch in case of manual recall device; • number and location of designated landing(s); • suitable maintenance and verification plan is implemented; and • whether the lift parks with doors open or closed at the designated landing (see guidance in the National Foreword).	Installer test to meet BS EN 81-73:2005, Clause **6**

Annex C (informative) Minimum provisions for lifts used in the evacuation of disabled people

Table C.1 gives the minimum provisions to fulfil the needs of a lift used in the evacuation of disabled people, prior to the lift's use by the fire and rescue services.

Evacuation lifts are intended to allow authorized persons to use lifts to evacuate disabled persons in the case of emergency. They are not intended to be used by disabled people to evacuate themselves.

Prior to use as an evacuation lift the owner/duty holder of the premises is expected to produce an evacuation plan and appoint and train appropriate persons to carry out the responsibilities of evacuation wardens.

These persons need to be available at each floor to be evacuated and at the main exit floor in order to take charge of the lift and assist in the evacuation of the disabled people waiting at the protected lobbies.

Full details of this evacuation procedure and the recommendations for the building design to incorporate evacuation lifts can be found in BS 9999:2008, Annex G.

Table C.1 **Minimum provisions for evacuation lift installations**

No.	Provisions	Clause in BS 9999:2008
1	Minimum car size of 1 100 mm wide × 1 400 mm deep	**G.2.1**
2	Minimum 800 mm wide, automatic, horizontal sliding doors	**G.2.1**
3	Basic lift meets the requirements of BS EN 81-20 and BS EN 81-70	**G.2.1**
4	Evacuation lift switch adjacent to landing door at final exit level (except on two floor hydraulic lifts)	**G.2.1**
5	Unless a two floor hydraulic, where the lower floor is the main exit, the lift to be provided with an alternative supply	**G.2.2**
6	Car preference control system after recall to exit floor (no landing calls)	**G.2.3**
7	Communication system	**G.2.3**
8	Trained staff working to an evacuation procedure plan specific to that building	**G.2.3**
9	Landing doors fire rated to at least 30 min according to ether BS 476-22 or BS EN 81-58	**G.2.1**

Annex D (informative) Example of an annual firefighters lift operational inspection report

An example of an annual firefighters lift condition report is shown in Figure D.1.

Figure D.1 **Example of an annual firefighters lift operational inspection report**

Annual firefighters lift operational inspection report			
Name and address of the company making the inspection			
Client name			
Client contact details			
Building name			
Building address			
Lift reference number			
Date of inspection			
a) Does the lift recall to the fire service access level without undue delay from the firefighters lift switch?		Yes	No
b) Does the lift on arrival at fire service access level stand with doors open?		Yes	No
c) Does the lift respond correctly to car calls entered?		Yes	No
d) Are landing calls disabled?		Yes	No
e) On arrival at a floor do doors operate as intended (constant pressure on open door push)?		Yes	No
f) Is the lift connected to a building alarm or building management system (BMS) (e.g. to recall the lift)?		Yes	No
g) Does the lift recall when required by a building alarm or BMS?		Yes	No
h) Was a changeover of supply tested?		Yes	No
i) Was the reaction of the lift to loss of supply tested?		Yes	No
j) Do all indicators relevant to the firefighters service operate correctly?		Yes	No
k) Are any other special features working correctly (list below)?		Yes	No
Name of the special features checked, e.g. water management systems			
If the answer to any question is "No" provide details of the problem and corrective action required by the client.			
Date of report			
Name of company representative making the inspection			
Signed on behalf of			

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